

## UNIVERSITY AND EDUCATIONAL INTELLIGENCE

CAMBRIDGE.—The Vice-Chancellor has published, for the information of the Senate, a statement received from the University Commission. There appears to the Commissioners to be sufficient evidence of needs which will ultimately require a contribution equivalent to, at least, ten per cent. of the net income of the Colleges. The Commissioners think it will be sufficient to specify in general among the purposes for which provision should be made:—

"1. Additional buildings for museums, laboratories, libraries, lecture-rooms, and other rooms for University business.

"2. The maintenance and furnishing of such buildings, including the provision of instruments and apparatus, together with the employment of curators, assistants, skilled workmen, and servants.

"3. Additional teaching power by the institution of new permanent or temporary professorships, and the employment of lecturers and readers, including the increase of the stipends of some of the existing professorships and the provision of retiring pensions.

"4. Grants for special work in the way of research, or for investigations conducted in any branch of learning or science connected with the studies of the University.

"The sources from which funds for the purposes described should be obtained appear to be clearly pointed out by the Act itself, when it empowers the Commissioners to enable or require the several Colleges, or any of them, to make contributions out of their revenues for University purposes, regard being first had to the wants of the several colleges in themselves for educational and other collegiate purposes.

"The principles on which payments from the Colleges should be contributed are, in the opinion of the Commissioners, as follows:—

"That such contributions should be made by the several colleges as nearly as possible on a uniform scale throughout, whether by annual payments to the proposed common University fund, or by a capital sum to be provided by the college out of money belonging to it in lieu of such annual payments; or by annexing any college emolument to any office in the University, with specified conditions of residence, study, and duty; or by assigning a portion of the revenue or property of the college as a contribution to the common fund, or otherwise, for encouragement of instruction in the University in any art, or science, or other branch of learning, or for the maintenance and benefit of persons of known ability and learning, studying, or making researches in any art or science, or other branch of learning in the University; or by providing out of the revenue of the college for payments to be made, under the supervision of the University, for work done or investigations conducted in any branch of learning or inquiry connected with the studies of the University within the University.

"The Commissioners think it probable that over and above the contributions to be required from the college on a uniform basis, some colleges may be willing, following in this respect the example of Trinity College, and in consideration of prospective additions to their revenues, or for other reasons, to contribute to the wants of the University by founding professorships or otherwise."

OXFORD.—The vacant Burdett Coutts Scholarship has been awarded to Mr. Edward B. Poulton, B.A., Scholar of Jesus College. The examiners have also announced that Mr. Francis H. Butler, B.A., Worcester College, distinguished himself in the examination and is worthy of honourable mention.

GLASGOW.—At a private meeting of the members of the University Council to consider who should fill the vacancy in the Chancellorship caused by the death of Sir William Stirling-Maxwell, fifty members voted for the Duke of Buccleugh, and thirty-one for Sir Joseph Hooker. A committee was appointed to endeavour to concentrate the vote upon the duke.

SOCIETIES AND ACADEMIES  
LONDON

Royal Society, March 7.—"Experimental Researches on the Temperature of the Head," by J. S. Lombard, M.D., formerly Assistant-Professor of Physiology in Harvard University, U.S. Communicated by H. Charlton Bastian, M.D., F.R.S.,

Professor of Pathological Anatomy in University College, London.

"Addition to Memoir on the Transformation of Elliptic Functions," by A. Cayley, F.R.S., Sadlerian Professor of Pure Mathematics in the University of Cambridge.

March 14.—"On the Function of the Sides of the Vessel in maintaining the State of Supersaturation," by Charles Tomlinson, F.R.S.

Anthropological Institute, February 26.—Mr. John Evans, D.C.L., F.R.S., president, in the chair.—The following new Members were announced:—Mr. W. Cohen and Mr. Gabriel.—A weapon from New Zealand was exhibited by Mr. Hyde Clarke.—Mr. J. Sanderson exhibited some stone implements and fragments of pottery from Natal, and read a paper on the subject of the present native inhabitants and their legends. The President remarked that the great bulk of the implements exhibited were extremely rude; and in respect to the pottery, observed that it presented remarkable similarity in pattern to pottery found in this country, a statement confirmed by the Rev. Canon Greenwell, who remarked that the pottery was hard and well-baked, and probably made for use in the household.—Mr. W. St. Chad Boscawen read a paper on the primitive culture of Babylonia, in which he referred to the rudely pictorial character of early Babylonian writing, and to its gradual development into a syllabic character, as shown in the syllabaries of Assur-bani-pal, which he illustrated by reference to the growth of pre-nominal ideas and the change of the archaic forms through hieratic into a cuneiform, or script hand. Treating the earlier forms as pictorial, he suggested that they gave evidence that the original form of dwelling was a cave, which then gave place to a construction of wattle and daub, and that to a structure supported by wooden beams on columns, and having doors and windows. To these were probably attached gardens about the entrance. The honour in which women were held by their children is indicated by the ideograph for mother, which signifies "home-divinity." Mr. Boscawen then stated, as his opinion, that the early Babylonians used the fire-stick to kindle their fires. The ideograph for "prison" is "dark-hole." In these early cities there were policemen who patrolled day and night. A vast number of other curious illustrations of the manners of ancient Babylon were deduced by Mr. Boscawen from the ideographs and syllabaries, and his lecture was listened to with great interest.

Physical Society, March 2.—Prof. W. G. Adams, president, in the chair.—The following candidates were elected Members of the Society:—Mr. J. P. Kirkman and Dr. W. J. Russell, F.R.S.—Mr. Sedley Taylor exhibited the colours produced in thin films by sonorous vibrations. A piece of thin brass perforated with a triangular, circular, or rectangular aperture, and bearing a thin film of soap solution, was placed horizontally on one end of an L-shaped tube; the beam of the electric lamp, after reflection from it, was received on a screen. It was shown that when a sound is emitted in the neighbourhood of the open end of the tube, the film takes up a regular form which is indicated by the different colours of the reflected light, and each note has its own particular colour figure; and further, with different instruments we have different figures. Thus when a square film was employed a kind of coloured grating was the result, which was modified by changing the note, and with a circular film concentric rings traversed by two bars at right-angles were observed.—Mr. W. H. Preece exhibited and described the phonograph. After referring to the manner in which the preceding communication bore on the subject of the telephone, he went on to explain the construction of the two instruments exhibited, which have been made in accordance with the published accounts of the apparatus and details received from the inventor, Mr. T. A. Edison, by Mr. Pidgeon and Mr. Stroh respectively. In the first of these the receiving and emitting discs are distinct, the former being of ferrotype iron, and the latter of paper, whereas, in the second form of apparatus, both these functions are performed by one and the same disc of iron. They also differ in that in Mr. Pidgeon's apparatus the drum receives its motion by hand, and in that of Mr. Stroh a descending weight is caused to communicate motion by a suitable train of wheels, which motion can be controlled and regulated by an adjustable pair of vanes. In both cases the drum is of brass traced over by a spiral groove, and the whole is mounted on a screw of the same pitch. The manner of using the phonograph is extremely simple. The drum having been covered with tinfoil, a uniform movement of rotation is given to it, and a fine metal point, firmly fixed to the centre of the receiving plate, is

brought in contact with it, care being taken to place the point accurately over the groove. If now this plate be sung or spoken to, the tinfoil will be indented in accordance with the vibrations communicated to the plate. The emitting plate having been provided with a resonator, its point is now brought into the position initially occupied by the point of the receiving plate, and on rotating the drum, with the same velocity, fairly identical sounds are given out. It will be seen that Mr. Stroh's apparatus has an advantage over that of Mr. Pidgeon, in that it secures a constant rate of rotation; but on the other hand, the sounds emitted by the paper disc appeared to be more distinct than those from the iron. A number of experiments were performed with the instruments. The sounds were reproduced at times with remarkable distinctness, and when Mr. Spagnoletti and Mr. Sedley Taylor sang "God Save the Queen," as a duet, through a double mouthpiece, the two voices could be clearly distinguished on its being reproduced. It was shown that even when an indented sheet of tinfoil has been employed to emit sounds, it retains its form with such perfectness that the sounds can be reproduced by means of it a second, and even a third time, with nearly equal distinctness. Prof. Graham Bell pointed out that the articulation of the instruments was very similar to what he had observed in the earlier forms of telephone, and he had no doubt, judging from his own experience of that instrument, that the phonograph will ere long be so adjusted as to articulate much more perfectly. He anticipated that the *quality* of the sound would be found to vary as the rate of rotation was altered, as well as the pitch, and this proved on experiment to be the case.

Royal Microscopical Society, March 6.—Mr. H. J. Slack, president, in the chair.—Mr. Chas. Stewart described a new species of coral said to have been obtained from an island in the vicinity of Tahiti, and which was referred to the genus *Stylaster*. The characteristics of the genus and the distinctive features of the new species were explained and illustrated by black board drawings, and specimens of the coral were exhibited under the microscope.—A paper on a new operculated infusorian from New Zealand, by Mr. Hutton, of Otago, was read by the president.—A paper by Mr. Adolf Schulze on a new and simple method of resolving the finest balsam-mounted diatom tests, was read by the secretary, and described the success which had attended the examination of this class of objects by means of the reflex-illuminator, and the immersion paraboloid, moistened with castor oil in place of water. The lines on *Amphipleura pellucida* were shown in this manner by Dr. Dickson, in illustration of the paper.—Lissajous curves drawn microscopically upon glass by Mr. West, were exhibited by Mr. Curties.

Institution of Civil Engineers, February 26.—Mr. W. H. Barlow, vice-president, in the chair.—The paper read was on liquid fuels, by Mr. H. Aydon.

Victoria (Philosophical) Institute, March 4.—A paper was read by the Rev. Dr. Rule, in reference to ancient Oriental monuments.

#### CAMBRIDGE

Philosophical Society, February 11.—Mr. J. W. L. Glaisher made a communication on the mode of formation of the factor table for the fourth million, now in course of construction.

#### PARIS

Academy of Sciences, March 11.—M. Fizeau in the chair.—The following papers were read:—On the phenomena connected with vision of coloured objects in motion, by M. Chevreul. He is able to show on a circle, one-half of which is black, the other half coloured, the complement of this colour, and prove that it is due to the arrangement of the two surfaces with regard to circular motion.—On some applications of elliptical functions (continued), by M. Hermite.—On the relative affinities and reciprocal displacements of oxygen and halogen elements combined with metallic substances, by M. Berthelot. The comparative reactions of the halogens and oxygen on various metals, and specially the reciprocal displacement between iodine and oxygen, depend neither on type nor on atomic or other formulæ of the combinations, but on the quantities of heat liberated by direct combination of the metals with each of the antagonistic elements taken in equivalent weights.—Influence of M. Pasteur's discoveries on the progress of surgery, by M. Sedillot. He shows the relation (to those discoveries) of Lister's treatment of wounds and its results; also Guérin's (with wadding, &c.). M. D'Abbadie stated that on the shores of the Red Sea the natives

have a maxium that a wound, to be healed, should remain in contact with air; and he found this was the case. He thinks the air may there be free from microbes.—The vibrations of matter and the waves of the ether in chemical combinations, by M. Favé.—On Mr. Edison's phonograph, by M. du Moncel.—On the industrial applications of electricity, by M. Du Moncel. This is a short summary of vol. v. of his "Exposé des Applications de l'Electricité" (third edition).—M. Cialdi was elected correspondent for the section of Geography and Navigation, in room of the Emperor of Brazil, elected Foreign Associate.—On elliptic polarisation by reflection at the surface of transparent bodies, by M. Cornu.—Note on the vibrations of liquids, by M. Barthélemy. A claim of priority.—Discovery of a small planet at the Observatory of Pola, by M. Palisa.—Observations of small planets, by M. Palisa.—On the fundamental points of the system of surfaces defined by an equation with partial derivatives of the first algebraic order, linear with regard to these derivatives, by M. Fouret.—On a class of transcendental functions, by M. Picard.—On the variations of terrestrial magnetism, by M. Quet. He examines, with the aid of calculation, the theory which attributes to the sun a direct action on the magnetic and electric fluids of the earth.—On the precise orientation of the principal section of Nicols, in apparatus of polarisation, by M. Laurent. For this purpose he places between polariser and analyser a diaphragm, one-half of which only is covered with a thin plate of quartz parallel to the axis, having the thickness of half a wave. When the Nicol, e.g., has to be placed at a determinate angle to certain reticular wires, the border of the plate is brought into the position, then the Nicols are placed accordingly.—Study of chloride of sulphur, by M. Isambert. There is only one chloride of sulphur in which the chloride is dissolved in considerable proportion at a low temperature.—On the substitution of sulphur for oxygen in the fatty series, by M. Dupré.—On the catechines (third note). Catechines of gambirs, by M. Gautier.—Action of fluoride of boron on organic matters (benzylidene aldehyde, ethylene), by M. Landolph.—On a new pyrogenous derivative of tartaric acid, dipyrrotartaric acetone, by M. Bourgoin.—On the acid of gastric juice, by M. Richet. The hydrochloric acid of gastric juice is in combination with tyrosine, leucine, and perhaps other similar substances.—Experimental researches on the inequality of the corresponding regions of the brain, by M. Le Bon. He examined 257 skulls in the Museum of Anthropology, and found 125 with predominance of the right side over the left, 111 with predominance of the left side, and 51 in which the bones were unequal but compensated each other, making the right side nearly equal to the left.—Classification of Stellerides, by M. Viguier.—On Garnierite, by M. Garnier.—Artificial production of brochantite, by M. Meunier. This was done by keeping fragments of galena about eleven months in a moderately concentrated solution of sulphate of copper.—The Silurian Tigillites, by M. Crié. He attributes those in the west of France to ancient plants, of calamitoid aspect, that lived in shallow water.—On the rôle of the retina in vision of near or distant objects, by M. Fano.

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